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REMARKSCLAIM REJECTION UNDER 35 USC §103

Claims 1 and 3 – 8 are finally rejected under 35 U.S.C. 103 over Applicants' Admitted Prior Art (AAPA) in view of Roberts et al., U.S. Patent 3,859,135, and Chen et al., U.S. Patent Application 2002/0124388.

Claim 1 has been further amended to additionally recite a "continuous" method for cutting expanded, punched or cast continuous metal mesh strip "freshly pasted with a polymer-free paste" into paperless battery plates for lead acid batteries with a cutting device "including a cutting roll having cutting blades mounted thereon, an index mechanism and an anvil roll opposed to said cutting roll for receiving the freshly pasted continuous metal mesh strip therebetween", heating the cutting device components to a temperature "in the range of about 160 to 300°C" whereby the freshly pasted strip does not adhere to the cutting device components, and cutting the freshly pasted continuous metal mesh strip into "discrete paperless battery plates".

Claims 3 – 5 and 7 have been withdrawn and claims 6 and 8 made dependent on claim 1.

It is reiterated that neither Roberts et al. nor Chen et al. was faced with the problem of severing sticky freshly pasted expanded continuous metal mesh strip into discrete paperless battery plates. Roberts et al. applied paste to discrete battery plates travelling on a conveyor and cut the paste with a pair of cutting wires. Chen et al. do not disclose how to cut continuous strip pasted with fresh, sticky conventional battery plates but disclose and claim the use of a battery paste to which a polymer has been added to obviate stickiness of the paste. This polymer addition requires the additional steps of polymerising (curing) the paste and vaporizing any moisture producing during the polymerising step, both costly steps which undesirably render the Chen et al. product frangible and the battery paste diluted. Applicants on the other hand are able to continuously paste strip by saturating continuous metal mesh with a fresh, sticky conventional paste and to sever the freshly-pasted mesh continuously on an assembly line operating at commercial speeds without the need for a polymer binder and ancillary polymerisation and vaporization steps.

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It is stated in the Manual of Patent Examining Procedures (MPEP) in Chapter 2100 (page 2100 – 210):

BASIC CONSIDERATIONS WHICH APPLY TO OBVIOUSNESS REJECTIONS

When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to:

- (A) The claimed invention must be considered as a whole;*
- (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;*
- (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and*
- (D) Reasonable expectation of success is the standard with which obviousness is determined.*

It is further stated on page 2100 – 121:

OBJECTIVE EVIDENCE MUST BE CONSIDERED

Objective evidence or secondary considerations such as unexpected results, commercial success, long-felt need, failure of others, copying by others, licensing, and scepticism of experts are relevant to the issue of obviousness and must be considered in every case in which they are present. When evidence of any of these secondary considerations is submitted, the examiner must evaluate the evidence. The weight to be accorded to the evidence depends on the individual factual circumstances of each case.

When taking the references as whole, with reference to consideration (B), neither Roberts et al. nor Chen et al. suggest the desirability of making Applicants' combination as now claimed. Roberts et al. heated a support surface under a sonotrode (microwave device), providing ultrasonic energy to cause paste to flow into a discrete plate grid, to avoid sticking of excess paste to the surface of the support surface.

Chen et al. added a polymer to battery paste to avoid stickiness of the paste. These references do not suggest Applicants' combination. Consideration (C) states that these references must be viewed without benefit of impermissible hindsight afforded by the

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claimed invention. With reference to consideration (D) "reasonable expectations of success" is the standard for obviousness.

Objective evidence is provided in the Declaration of Mr. Thomas Lester Oswald who has over 40 years of experience in the battery industry. Turning to paragraph 7 of his Declaration, it is evident there has been a long-felt need in the industry for paperless battery plates because of cost considerations and production problems such as paper clogging and paper release interfering with cell welding.

With reference to paragraph 6 of his Declaration, the saturation and coating on each side of continuous strip with paste necessitated paper barriers to obviate sticking to the cutter dies and anvil roll, which operate as pressure cut dies. The cutting pressures are high to enable the sharp blades to cut through the pasted material, impressing considerable force on the metal mesh, which was believed to exacerbate sticking of the battery paste to the cutting surfaces, anvil roll and cutter blades. Turning to the last sentence of paragraph 7 of his Declaration, it was not expected, to a person skilled in the art, that heating of cutting surfaces would obviate sticking of the paste to the cutting surfaces.

Again with reference to paragraph 7 of his Declaration, flash drying tests were conducted to avoid sticking of paste with failed results.

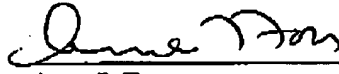
Turning to paragraph 15 of Mr. Oswald's Declaration, Applicants are achieving commercial interest and success shortly after introduction of their method and apparatus to the industry. One U.S. battery producer and one Mexican battery producer are currently conducting production line trials preparatory to full time production of paperless plates.

The Declarant Mr. Oswald confirms that persons skilled in the art have been working on the problem for years and, notwithstanding a long-felt need, were unable to solve the problem.

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It is therefore respectfully submitted that claims 1, 6 and 8, as amended, are not obvious in view of the cited references and are in condition for allowance. Favourable consideration and withdrawal of the Final Rejection accordingly are earnestly solicited.

Respectfully submitted,
Marlow, et al.


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